

locations equidistant from the vacuum cleaner exhaust port. An additional area sample, located in the northeast corner of the room, was taken immediately after the vacuum cleaner was turned off. The room was then ventilated for approximately two hours to minimize the possibility of interference with subsequent tests. To reduce the possibility that fibrous dust, which might normally be present in the indoor air, or fibers generated by a previous test might interfere with the analyses of the test samples, "control" samples were taken immediately prior to each of the tests before any handling of the asbestos-containing dust.

Since it would be difficult, if not impossible, to simulate with a commercial asbestos product actual "brake dust," with respect to particle and fiber size distributions and thus to simulate the efficiency with which the fibers were removed by the vacuum cleaner filtration system, it was desirable to use for the evaluation actual asbestos-containing dust generated in a manner similar to that associated with automobile maintenance procedures, e.g., grinding of brake shoes. A bulk sample of dust produced by grinding of brake shoes was obtained from a local automotive axle plant. This dust had been collected by fabric filters incorporated in the plant's local exhaust ventilation systems. The physical appearance of the dust was that of a very fine, dry, greyish-brown powder similar in consistency to talcum or face powder. No other dust was mixed with the brake dust during or after entrainment by the exhaust-filtration systems. The dust was analyzed in the Clayton laboratory for percent fiber and fiber length distribution by phase contrast microscopy at 400X magnification. The results indicated that the dust was composed of approximately 19.4 percent fiber (i.e., fiber to particle ratio), and that fiber lengths ranged from approximately four micrometers to greater than fifty micrometers. Approximately four percent of the fibers were less than six micrometers in length, about forty-two percent measured between six and twelve micrometers, and the remaining fifty-four percent measured greater than twelve micrometers in length.

SAMPLING AND ANALYTICAL METHODS

Both general area and breathing zone samples were collected by drawing air at a nominal flowrate of two liters per minute through 37-mm diameter cellulose ester membrane filters (Millipore, Type AA, nominal pore size 0.6 micrometers) mounted in a three-piece cassette with the cover removed; using portable battery-operated pumps (Nine

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